2018 Fall
LIFE SCIENCES & IBB SEMINAR

Cancer immunotherapy beyond PD-1 immune checkpoint blockade

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For more than 100 years, cancer immunotherapy has played an ever-increasing role in the understanding and treatment of cancer even though there are not many approved drugs and regimens. Activating the immune system for therapeutic benefit in cancer has long been a goal in immunology and oncology. After repetitive failures, the tide has finally changed due to the success of recent proof-of-concept clinical trials using antibodies to blockade immune inhibitory molecules such as CTLA-4 and PD-1. These successes suggest that tolerance raised by tumor microenvironment is a major obstacle for immunotherapy and therefore, blocking the tolerance is the first step to rejuvenate tumor-specific T cell immune responses. However, because the immune conditions are quite different among cancer types and individual patients, appropriate immune-interventions should be used for each person. For instance, the efficacy of PD-1 blockade in clinical trials has been variable in the patients with various types of cancers.
In this seminar, the basic concept of T cell exhaustion and the role of inhibitory molecules expressed by the exhausted T cells and regulatory T cells will be introduced. Secondly, we will present how various immune checkpoints including PD-1 and TIGIT and their ligands communicate each other to suppress anti-cancer immunity and these interactions are quite different in each individual patient. Especially, the tumor expression of ligands for immune checkpoints, PD-1 and TIGIT, seems to be critical to determine the progression of tumors. Finally, we will suggest which strategy should be applied to predict and enhance the efficacy of immune checkpoint blockers in each individual patient. Indeed, our data shows that classification of cancers dependent on the expression of immune checkpoint ligands enhance the power of prediction for immune checkpoint blockade therapy. Altogether, a personalized combined immunotherapy based on the evaluation of patients' immune status may be exploited for further improvement of current cancer immunotherapies.

- **Date: Oct 19 (Fri) 4:30PM**
- **Place: Auditorium(1F), POSTECH Biotech Center**
- **Inquiry: IBB Tel: 279-8284**